R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE TITLE

The title has been amended to more clearly indicate the nature of the invention to which the claims are directed, as required by the Examiner.

INFORMATION DISCLOSURE STATEMENT

The Examiner has refused to consider JP 06-045571 submitted with the IDS filed on April 10, 2008, on the grounds that no English translation was provided for JP 06-045571.

However, as indicated in the IDS filed on April 10, 2008, JP 06-045571 was cited in an Office Action in a counterpart Japanese application, and an English language translation of the Japanese Office Action was provided. The English language translation of the Japanese Office Action constitutes a concise explanation of relevance of JP 06-045571. See MPEP 609.04(a)III.

Accordingly, it is respectfully requested that the Examiner consider JP 06-045571 and make it of record in the present application, and it is respectfully requested that the Examiner return a fully initialed copy of the IDS form filed on April 10, 2008.

THE CLAIMS

Claim 1 has been amended to include the subject matter of claim 5, which has been canceled.

In addition, claim 1 has been amended to recite that the imaging element is enabled to perform high-definition imaging due to movement of the movable portion, as supported by the disclosure in the specification at, for example, page 13, lines 21-24.

Still further, the claims have been amended to make some minor improvements, including some minor grammatical improvements and corrections of some minor antecedent basis problems, so as to put them in better form for issuance in a U.S. patent.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered.

THE PRIOR ART REJECTION

Claims 1-5 and 7 were rejected under 35 USC 103 as being obvious in view of the combination of USP 6,341,067 ("Conder") in view of USP 6,940,542 ("Kitazawa et al") and further in view of USP 5,043,845 ("McDermott et al"), and claim 6 was rejected under 35 USC 103 as being obvious in view of the combination of Conder, Kitazawa et al, McDermott et al and USP 5,216,250 ("Pellegrino et al"). These rejections, however, are

respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in amended independent claim 1, an imaging apparatus is provided which comprises: a fixed plate portion; a spring portion formed by notching an interior of the fixed portion; a movable portion supported in the fixed portion via the spring portion so as to be capable of moving; a micro-motion element which moves the movable portion; an imaging element which is provided on the movable portion, and which is enabled to perform high-definition imaging due to movement of the movable portion; a cooling element having a cooling surface that is in contact with a back side of the imaging element through a heat sink; a thermally conductive member interposed in a gap between the fixed portion and the movable portion; a housing which accommodates therein the fixed portion, the spring portion, the movable portion, the micro-motion element, the imaging element, the cooling element and the thermally conductive member, and which discharges heat conducted from a heat generating surface of the cooling element through the movable portion and the thermally conductive member.

Moreover, according to amended independent claim 1, the thermally conductive member is pushed out or expanded from the gap between the fixed portion and the movable portion when the gap is narrowed or widened by movement of the movable portion,

and the thermally conductive member has a viscosity such that the thermally conductive member does not flow down from the gap between the fixed portion and the movable portion even when inclined.

With the structure recited in amended independent claim 1, the thermal resistance in a radiation path can be reduced, thereby allowing effective cooling of the imaging element.

As recognized by the Examiner, Conder discloses a CCD cooled by a cooling element (Fig. 4, for example, cited by the Examiner). The Examiner acknowledges on page 4 of the Office Action that Conder does not disclose a movable portion on which the imaging element is mounted, or a micro-motion element for moving the movable portion.

For this reason, the Examiner has cited Kitazawa et al, which discloses an imaging apparatus which includes a shake correction mechanism that corrects camera shake by two-dimensionally displacing a two-dimensional imaging element (Fig. 7, cited by the Examiner). On page 5 of the Office Action, the Examiner acknowledges that even in combination Conder and Kitazawa et al do not disclose a thermally conductive member interposed in a gap between the fixed portion and the movable portion in the manner recited in claim 1.

For this reason, the Examiner has cited McDermott et al to supply the missing teachings of Conder and Kitazawa et al.

McDermott et al discloses providing a layer of thermally and electrically conductive grease between a heat sink and a linear sensor array in a high-speed CCD sensor. More specifically, McDermott et al discloses providing a grease between the bar member 24 of the linear sensor array 10 and the flat surface 33 of the heat sink 30 (column 3, lines 58-65), or between a copper land 62 and the bar member 24 of the linear sensor array 10 (column 4, lines 39-46). With respect to claim 5, moreover, the Examiner asserts on page 6 of the Office Action that "it is inherent that the grease has a certain degree of viscosity so that the grease does not flow freely."

It is respectfully submitted, however, that even in combination, Conder, Kitazawa et al and McDermott et al do not disclose or suggest the structure recited in amended independent claim 1.

That is, according to the present invention as recited in clarified amended independent claim 1, the imaging element provided on the movable portion is enabled to perform high-definition imaging due to movement of the movable portion.

In addition, according to independent claim 1, the thermally conductive member is interposed in a gap between the fixed portion and the movable portion. For example, the thermally conductive member is provided at the locations indicated by cross-hatching in Fig. 2.

Still further, according to amended independent claim 1, the thermally conductive member is pushed out or expanded from the gap between the fixed portion and the movable portion when the gap is narrowed or widened by movement of the movable portion, and the thermally conductive member has a viscosity such that the thermally conductive member does not flow down from the gap between the fixed portion and the movable portion even when inclined.

Thus, according to the structure of the present invention as recited in amended independent claim 1, the imaging element is cooled while it is regularly slightly moved (e.g., two-dimensionally in an airtightly sealed space). Moreover, the gap between the fixed portion and the movable portion is filled with the thermally conductive member which has a degree of viscosity such that it does not flow down from the gap and also does not prevent the relative movement of moving portion with respect to the fixed portion.

By contrast, McDermott et al merely discloses providing a thermally conductive grease between to elements which do not move with respect to each other in the manner recited in claim 1. Indeed, according to McDermott et al, the linear sensor array 10 is attached to the heat sink 30 by screw-type fasteners 50.

Accordingly, it is respectfully submitted that McDermott et al clearly does not disclose or suggest providing a thermally

conductive member in a gap between a moving portion and a fixed portion as recited in claim 1, wherein the moving portion is intended to be moved to enable high-definition imaging by the imaging element. And it is respectfully submitted, therefore, that McDermott et al clearly cannot disclose or suggest providing such a thermally conductive member to have a viscosity such that movement between the moving portion and the fixed portion is not prevented, and such that the thermally conductive member does not flow down from the gap.

Thus, it is respectfully submitted that McDermott et al does not disclose or suggest the thermally conductive member recited in claim 1, which is interposed in a gap between the fixed portion and the movable portion (which is moved to enable high-definition imaging), wherein the thermally conductive member is pushed out or expanded from the gap between the fixed portion and the movable portion when the gap is narrowed or widened by movement of the movable portion, and the thermally conductive member has a viscosity such that the thermally conductive member does not flow down from the gap between the fixed portion and the movable portion even when inclined.

In view of the foregoing, it is respectfully submitted that the present invention as recited in amended independent claim 1 and claims 2-4, 6 and 7 depending therefrom clearly patentably distinguishes over Conder, Kitazawa et al McDermott et al, and

Pellegrino et al, taken singly or in any combination consistent with the respective fair teachings thereof, under 35 USC 103.

* *

Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,

/Douglas Holtz/

Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, New York 10001-7708
Tel. No. (212) 319-4900
Fax No. (212) 319-5101
DH:iv:nk